

Steve Martin

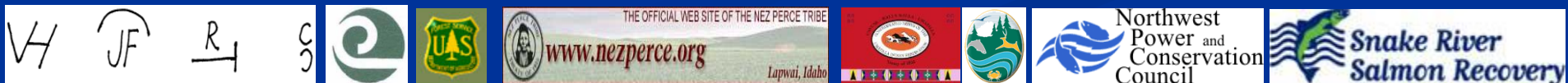
Southeast Washington

Snake River Salmon

Recovery Board

Snake ESU/DPS update: Tucannon
Habitat Programmatic and Asotin

IMW



Interesting Initiatives

CHaMP – habitat status and trends

Life Cycle Mortality Assessment

Project Effectiveness Monitoring

Time Lapse Camera Remote Monitoring

Low elevation aerial video

Agroforestry LWD donation

Recreational Fish Harvest Management



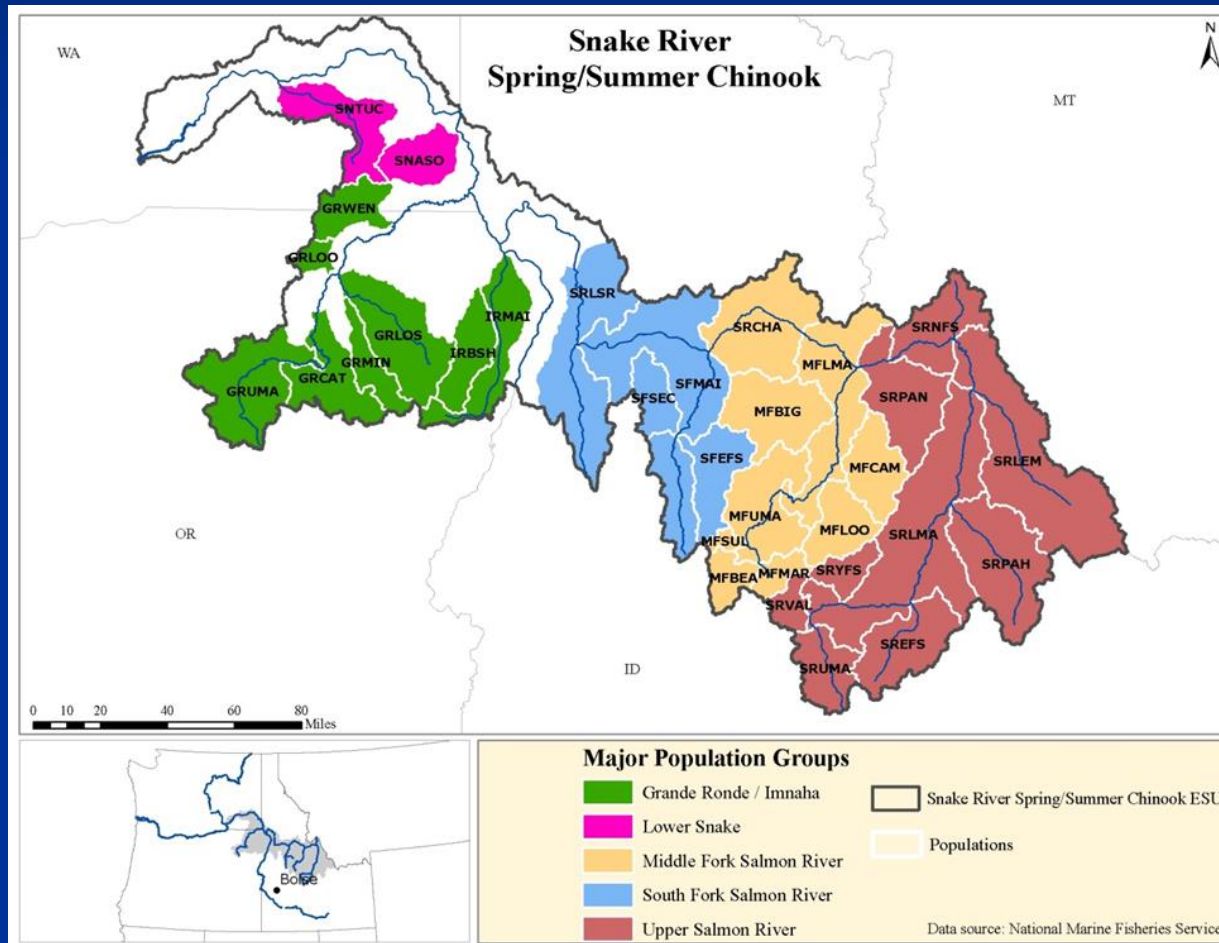
Washington Approach



Umbrella project (#2010-077-00)



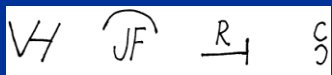
Geographic Context for Spring Chinook ESU

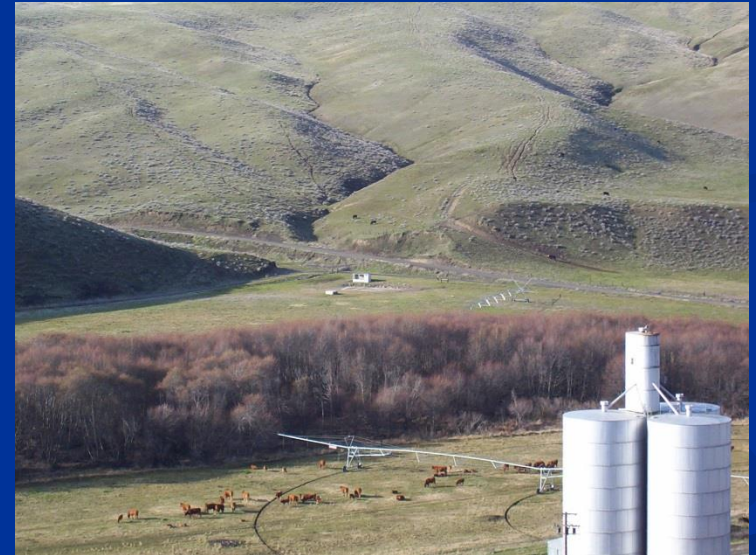


Tucannon Programmatic

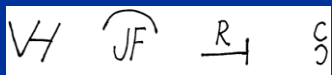
Goal is to improve habitat conditions
in the Tucannon River for the spring
chinook domain by 17% as identified
by the gap analysis in the 2008 FCRPS
BiOp

Umbrella project (#2010-077-00)





Umbrella project (#2010-077-00)



Strategy

The watershed restoration framework (Roni, et al 2002) recommended that natural process (hydrology, sediment, temperature) be restored and isolated habitats be reconnected – this took 15 years. Those are now being followed with:

1. Develop side channels/connect floodplains
2. Remove or set back infrastructure (dikes, roads, buildings)
3. Enhance instream complexity (large wood)
4. Enhance riparian

Umbrella project (#2010-077-00)



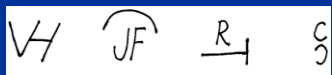


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Connect River to Floodplain



Umbrella project (#2010-077-00)



THE OFFICIAL WEB SITE OF THE NEZ PERCE TRIBE

www.nezperce.org

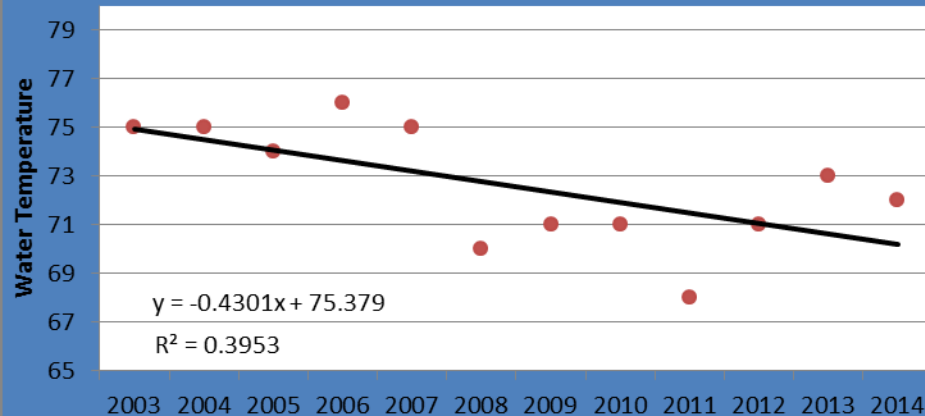
Lapwai, Idaho



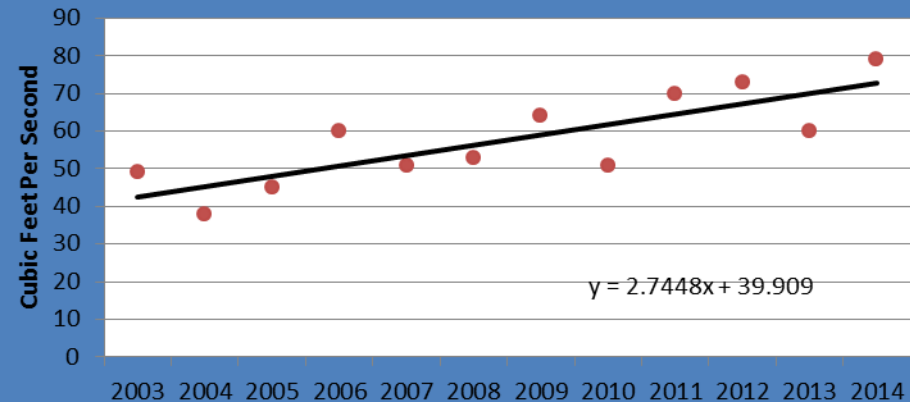
Results

Colder Water & More Water

Tucannon Instantaneous Maximum Water Temperature at Marengo



Tucannon River Instantaneous Minimum Flow at Marengo

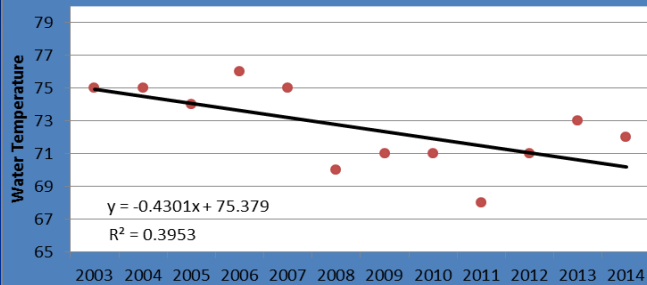


Umbrella project (#2010-077-00)

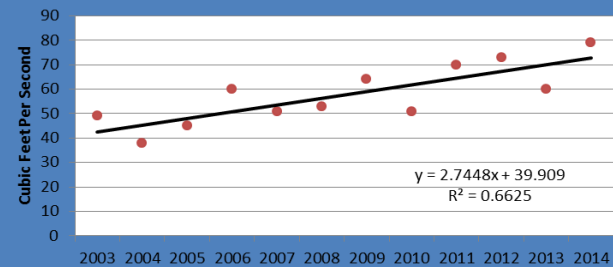


Regional Comparisons

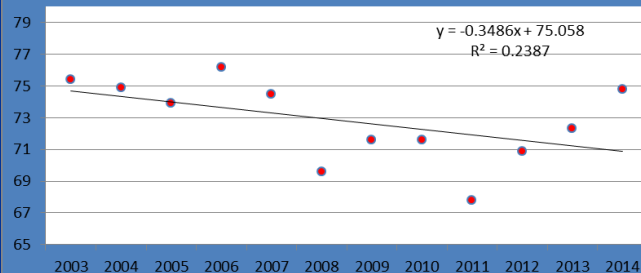
Tucannon Instantaneous Maximum Water Temperature at Marengo



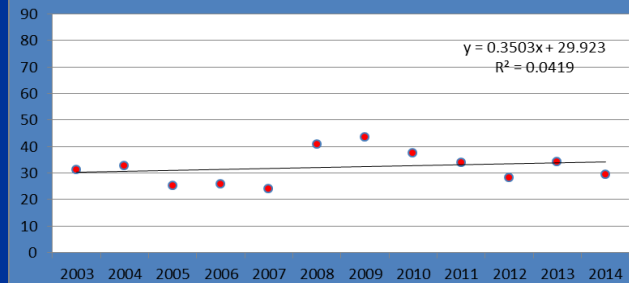
Tucannon River Instantaneous Minimum Flow at Marengo



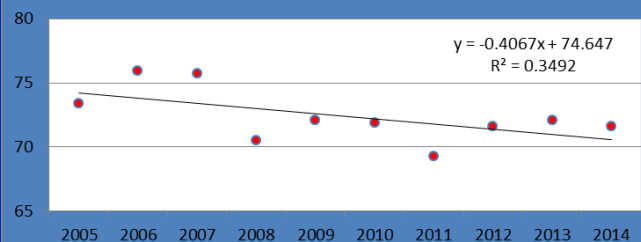
Touchet River Instantaneous Maximum Water Temperature above Dayton



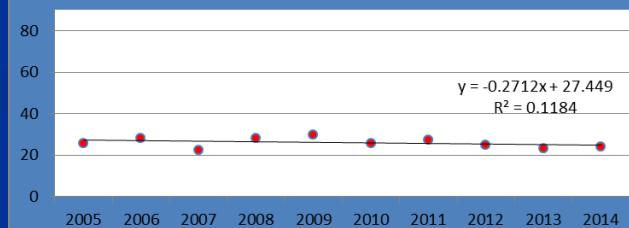
Touchet River Instantaneous Minimum Flow above Dayton



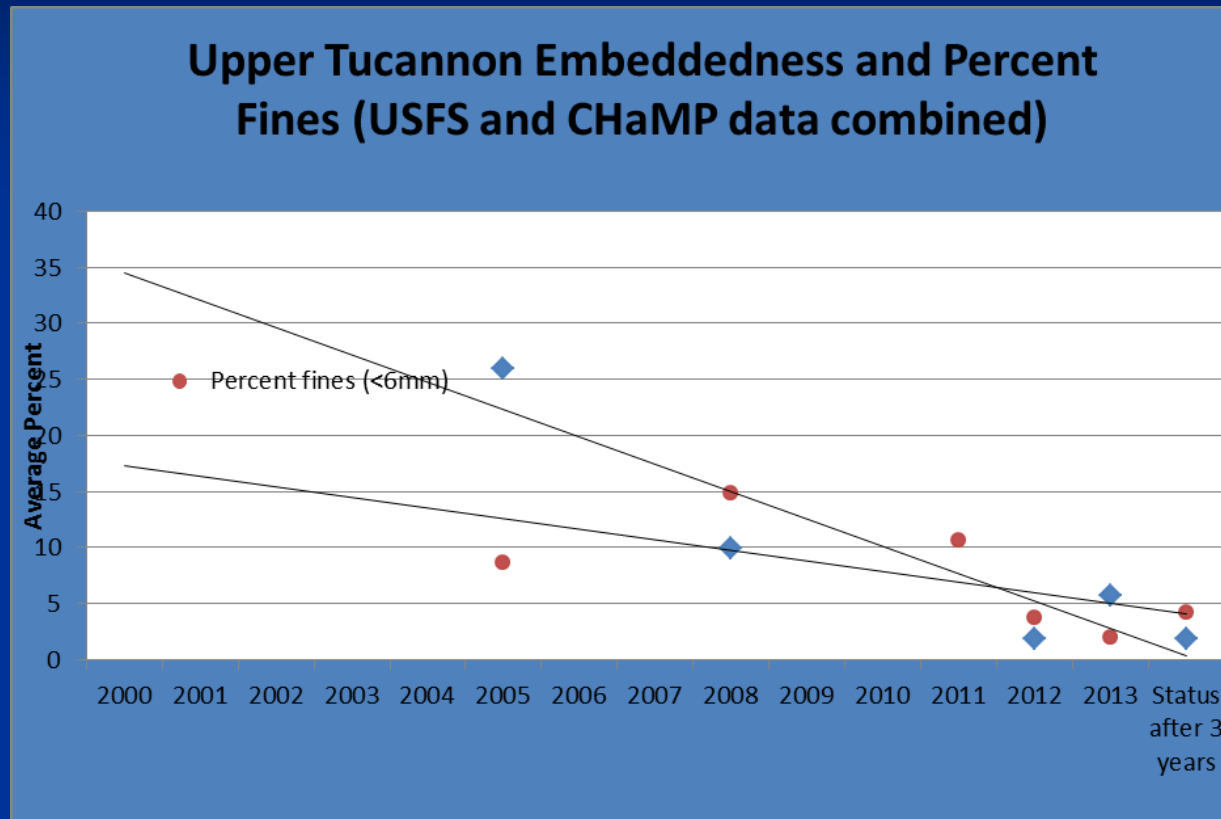
Asotin Creek Instantaneous Maximum Water Temperature above George Creek



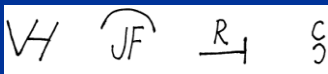
Asotin Creek Minimum Instantaneous Flow Above George Creek



Sediment



Umbrella project (#2010-077-00)



Adult Spring Chinook

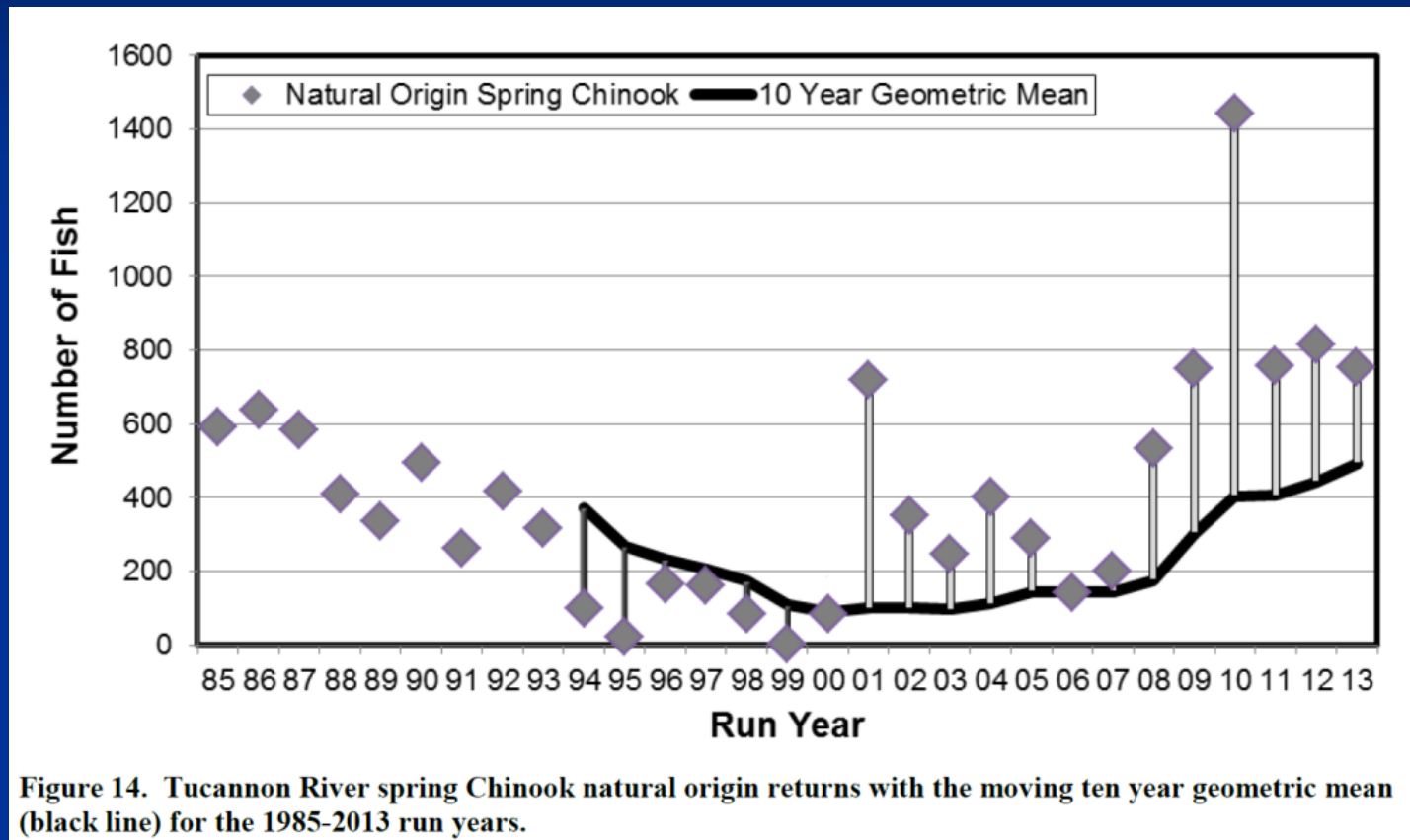


Figure 14. Tucannon River spring Chinook natural origin returns with the moving ten year geometric mean (black line) for the 1985-2013 run years.

Umbrella project (#2010-077-00)

Asotin Creek Intensively Monitored Watershed



Acknowledgements

Collaborators and Funding



Landowners and Sponsors



Thornton &
Koch Families

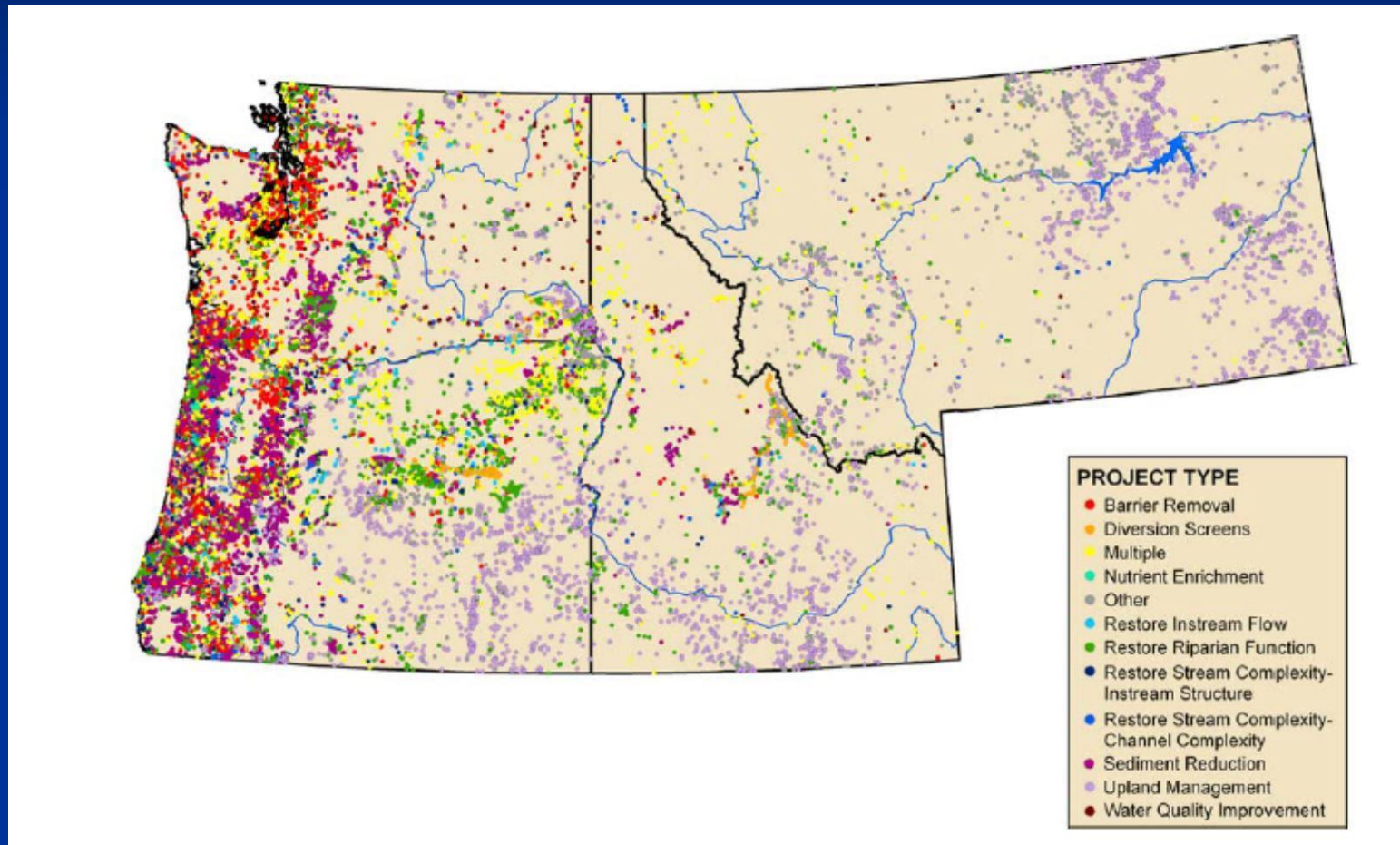


OUTLINE

- Intensively Monitored Watershed
 - Who is doing “it” – PSMFC, RCO, ELR, WDFW
 - Why are IMW’s necessary
 - What IMW’s are
- What have we been doing in Asotin (2008 – 2014)
 - Monitoring
 - Restoration
 - Results

Why conduct restoration studies

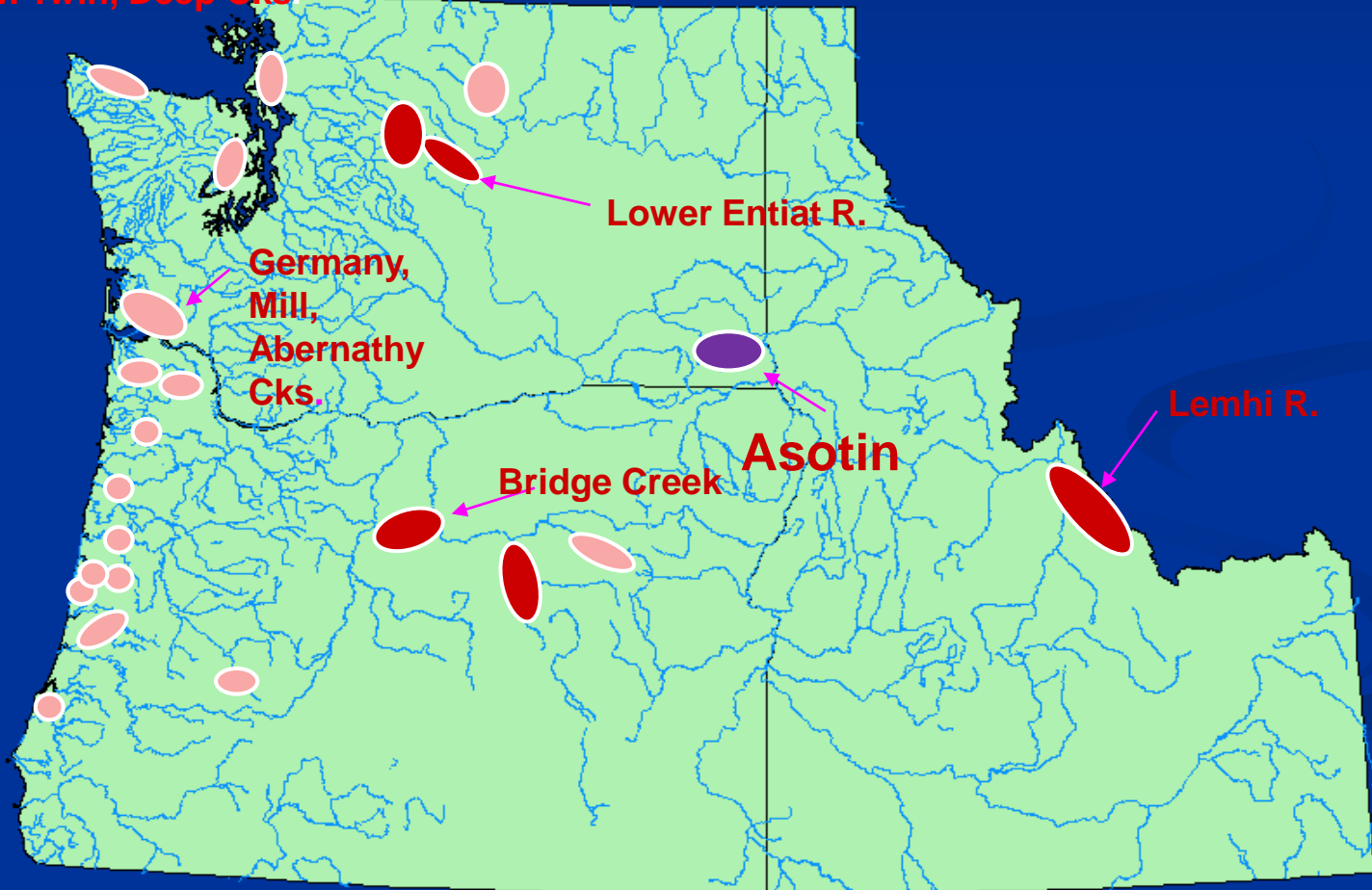
Restoration Spending



Distribution and type of river restoration projects in the Pacific Northwest (35,696 projects; Katz et al. 2007).

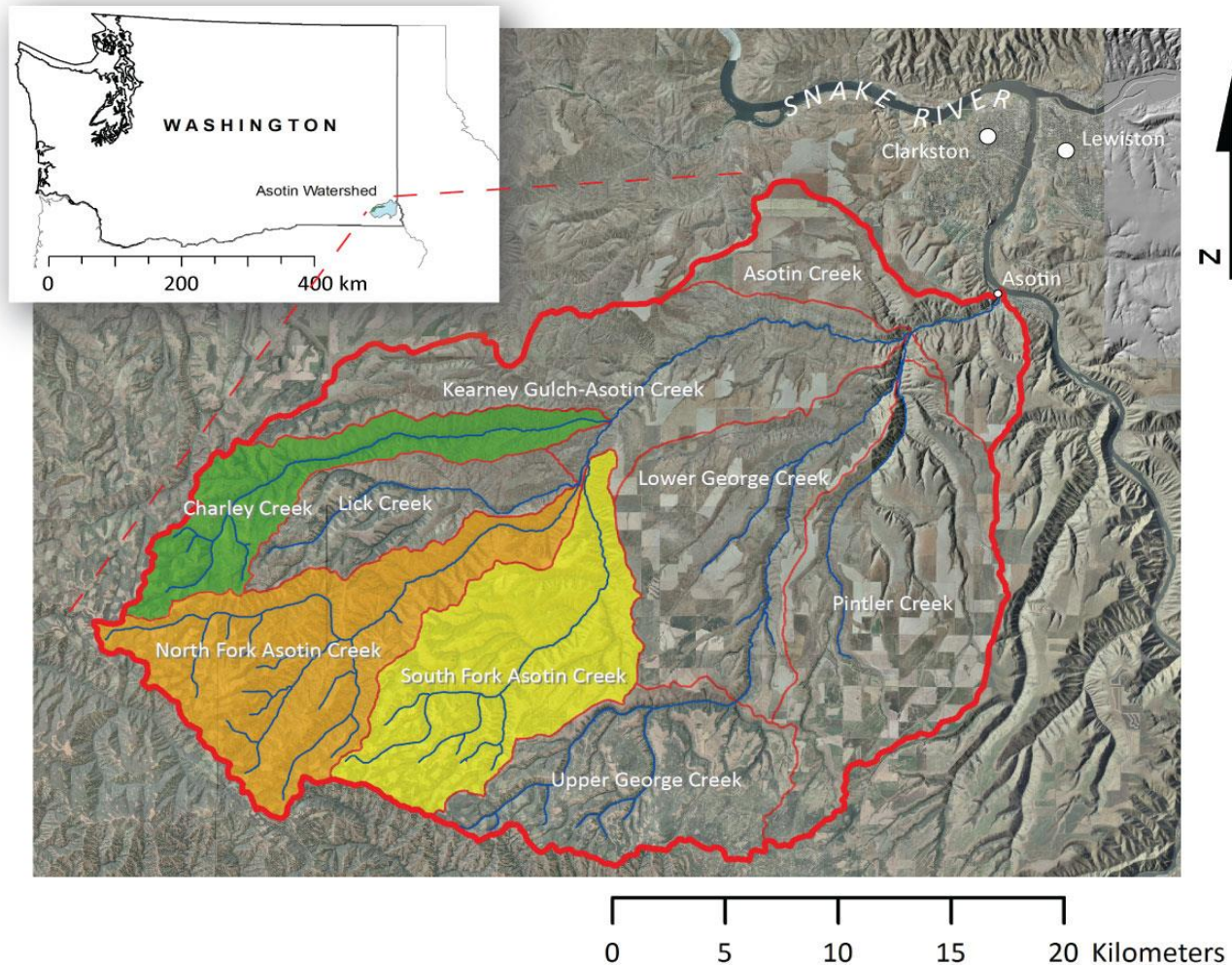
Intensively monitored watersheds (IMW_s)

E. & W. Twin, Deep Cks



Asotin IMW

Location and Selection process



Asotin IMW goals

measures of success

- Success

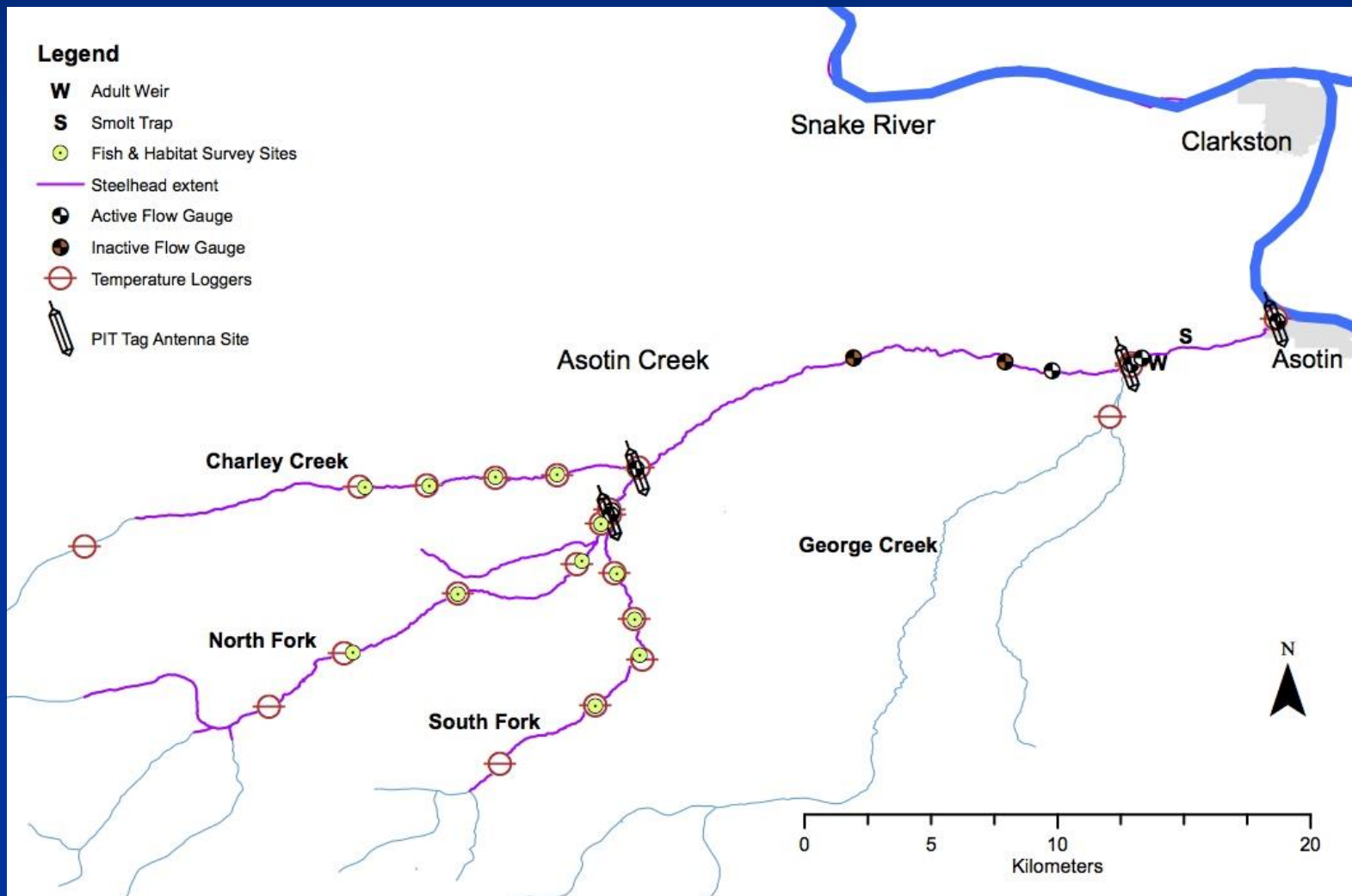
- ↑ Smolts per Spawner



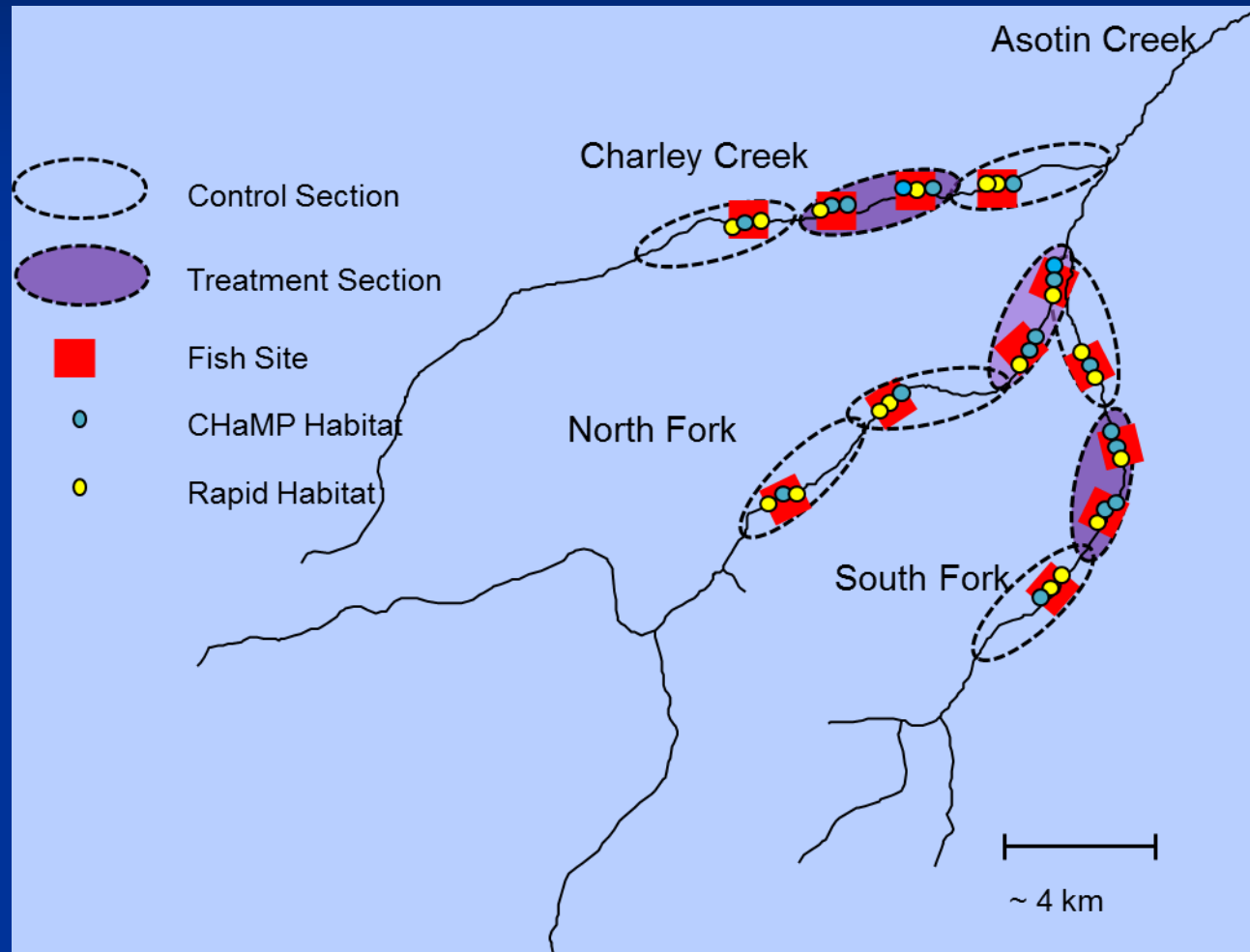
- Other Metrics

- Juv. Abundance, Growth, Movement, Survival, Production (weight/area/time)

Monitoring Infrastructure



Experimental Design



Treatment Schedule

2012 – South Fork

2013 – Charley

2014 – North Fork

Monitoring



Fish



Habitat

Monitoring Fish (WDFW)

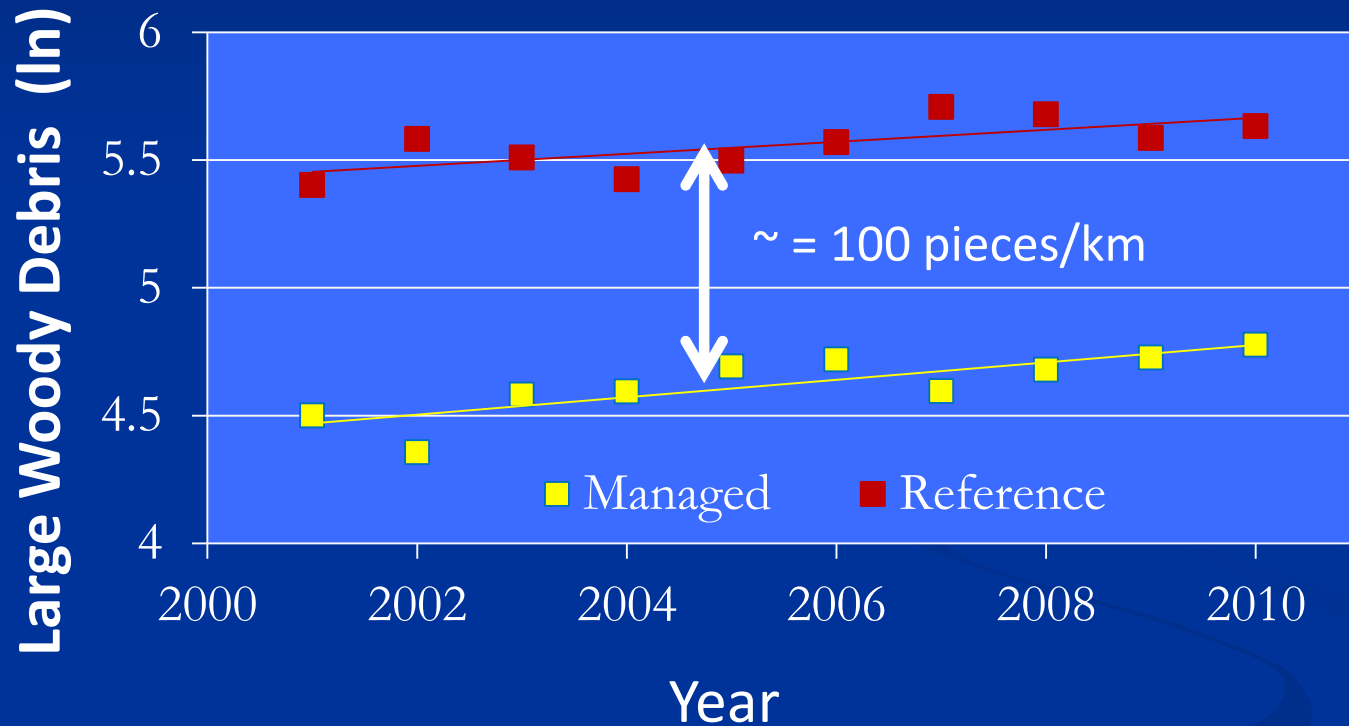


Adult weir



Smolt trap

Restoration rationale



Median wood counts (ln) in managed and reference conditions across the interior Columbia Basin (Roper et al. 2011; AFS symposium in Seattle, WA).

Restoration method



Restoration methods

Deflector PALS



Restoration methods

Mid-Channel PALS

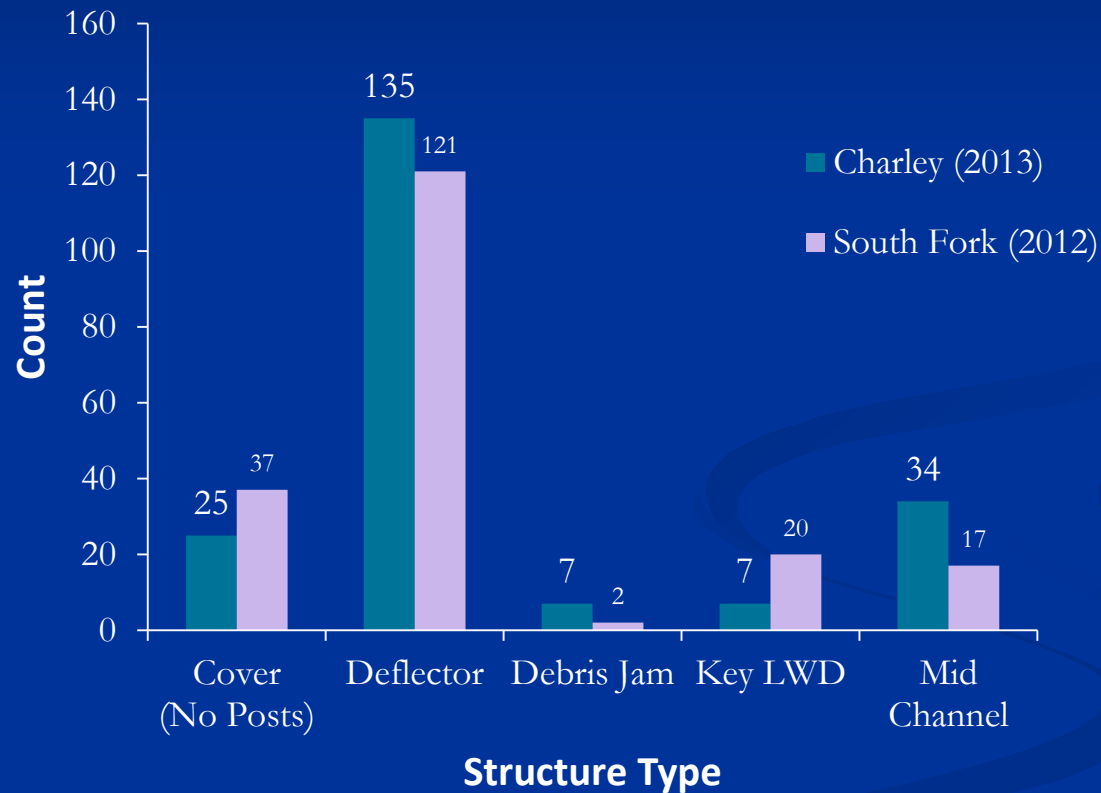


Restoration methods

Key LWD



Restoration Implementation



Number and type of structures built in South Fork Asotin Creek (2012; n = 197) and Charley Creek (2013; n = 208).

Restoration costs

| <u>Materials</u> | <u>Cost/ Structure</u> |
|----------------------|----------------------------|
| Posts (delivered) | 10.00 |
| Tree delivery | 20.00 |
| Labor (Installation) | 40.00 |

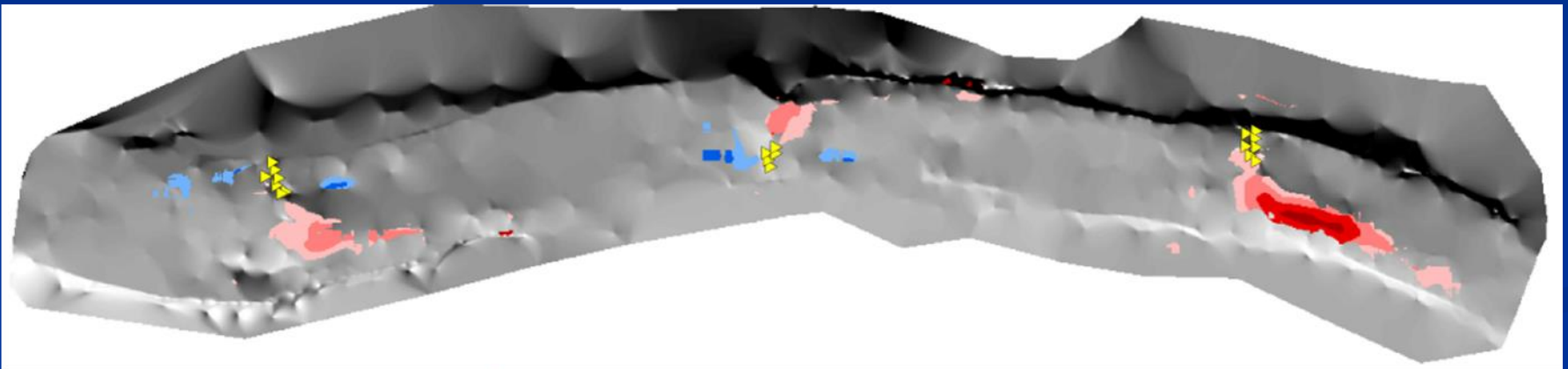


Habitat Changes



Habitat Changes

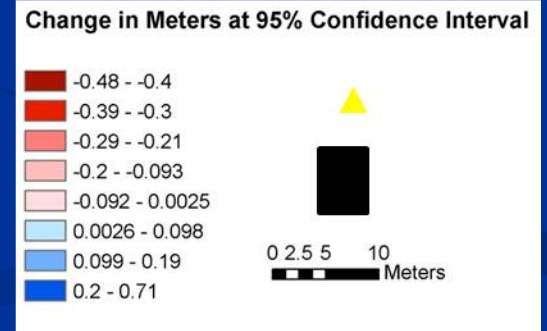
trial response: 2012



Stream Flow



Geomorphic change detection in North Fork trial restoration site: 2012-2011.



Legend

Habitat changes



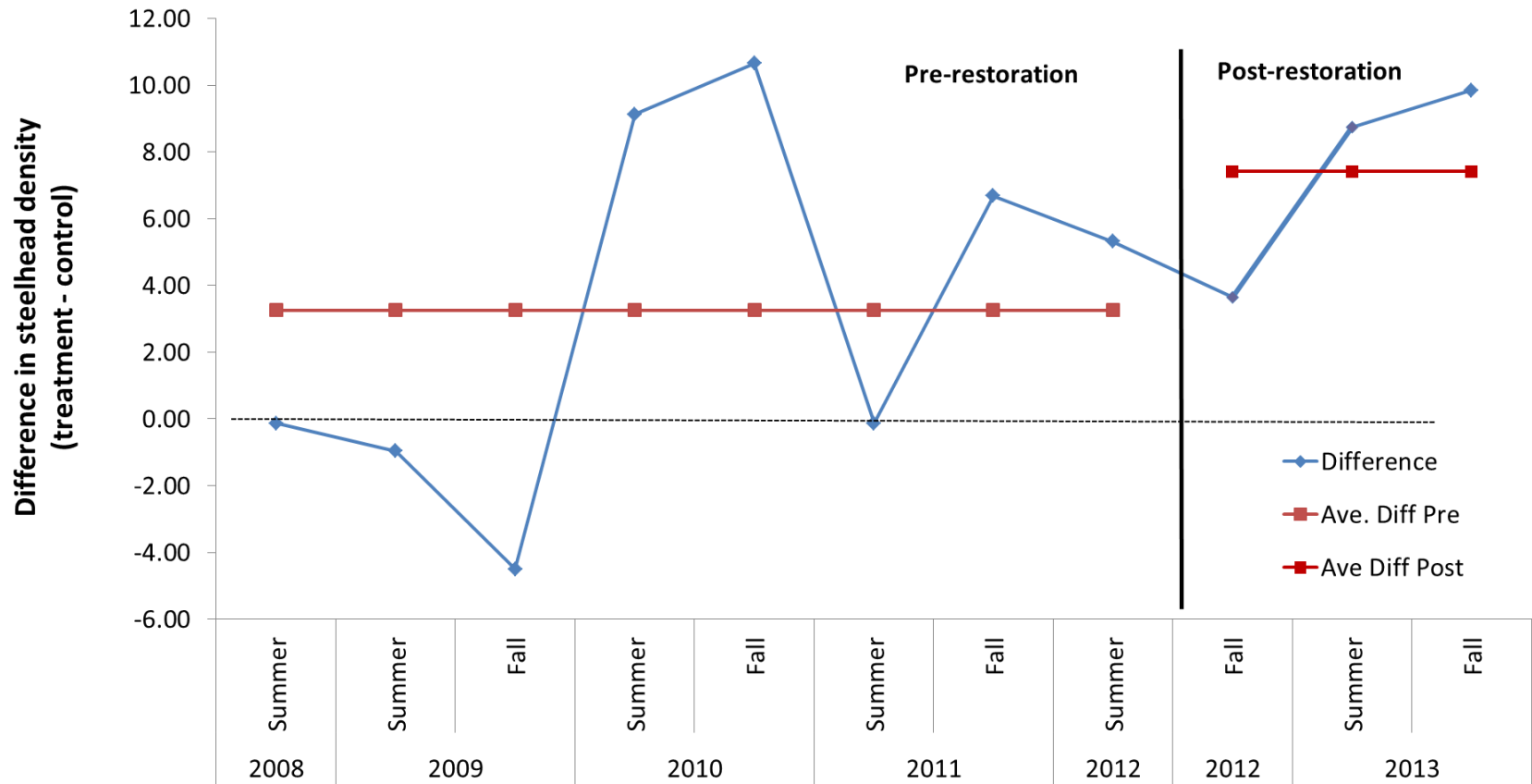
FISH Results

Juvenile Steelhead PIT Tag Summary

| Stream | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | Total |
|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|
| Asotin | 2,462 | 1,552 | 1,895 | 1,862 | 946 | 2,605 | 4,002 | 4,680 | 3,378 | 23,382 |
| Charley | - | - | - | 423 | 1,294 | 1,953 | 1,282 | 1,136 | 1,247 | 7,335 |
| North Fork | - | - | - | 372 | 470 | 1,396 | 906 | 932 | 1,809 | 5,885 |
| South Fork | - | - | - | 549 | 735 | 1,857 | 1,275 | 1,495 | 1,940 | 7,851 |
| <i>IMW subtotal</i> | - | - | - | 1,344 | 2,499 | 5,206 | 3,463 | 3,563 | 4,996 | 21,071 |
| Total | 2,462 | 1,552 | 1,895 | 3,206 | 3,445 | 7,811 | 7,465 | 8,243 | 8,374 | 44,453 |

Summary of the number of juvenile steelhead (> 70 mm) PIT tagged in Asotin Creek from 2005 to 2013. * WDFW fish data provisional for 2012 & 2013.

FISH RESULTS

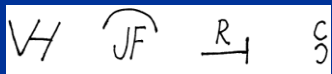


Difference of juvenile steelhead density between South Fork treatment and all controls combined (Pre P = 0.12).



Looking Forward

- Habitat Programmatic Expansion
- IMW and CHaMP results
- Life Cycle Mortality and Project Effectiveness results
- Maintain the Course



Thank You

Umbrella project (#2010-077-00)

